a load [measuring unit] processing device for [measuring] processing a load condition of a network or the video data distribution device;

a data extractor for extracting [the number] an amount of frame data from video data comprising frame data, the amount of extracted frame data corresponding to a [measurement result of said] load condition processed by said load processing device [from video data including plural frame data]; and

a transmitter for transmitting the frame data extracted by the data ~~extract~~or.

2. (Amended) The video data distribution device according to claim 1, wherein based on the [measurement result of the load measuring unit] load condition processed by said load processing device, the data extractor extracts all of the frame data [of] comprised within the video data when the load is low, and extracts a part of the frame data [of said] comprised within the video data when the load is high.

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3. (Amended) The video data distribution device according to claim 1, wherein the data extractor extracts [the number] an amount of frame data by thinning frame data from the frame data comprised within the video data[,] based on [the measurement result of the load measuring unit, among the

plural frame data] the load condition processed by the load processing device.

4. (Amended) The video data distribution device according to claim 1, wherein the video data comprises intra-frame compressed frame data and inter-frame compressed frame data,

the data extractor extracts the video data with the inter-frame compressed frame data deleted therefrom, [from the video data having intra-frame compressed frame data and inter-frame compressed frame data] based on the [measurement result of the load measuring unit] load condition processed by the load processing device, and

the transmitter transmits the video data extracted by the data extractor.

Claim 5, line 2, change [1] to --1,--

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6. (Amended) The video data distribution device according to claim 5, wherein the MPEG data comprises I pictures and P pictures, and

the data extractor generates MPEG data with P pictures deleted therefrom [from MPEG data having I picture and P picture] in accordance with the [measurement result of the load measuring unit] load condition processed by the load processing device.

7. (Amended) The video data distribution device according to claim 5, wherein the MPEG data comprises I pictures and B pictures, and

the data extractor generates MPEG data with B pictures deleted therefrom [from MPEG data having I picture and B picture] in accordance with the [measurement result of the load measuring unit] load condition processed by the load processing device.

8. (Amended) The video data distribution device according to claim 5, wherein the MPEG data comprises I pictures, P pictures, and B pictures, and

the data extractor generates MPEG data with P pictures and B pictures deleted therefrom in accordance with the [measurement result of the load measuring unit] load condition processed by the load processing device.

B2 Cont.

9. (Amended) The video data distribution device according to claim 5, wherein the MPEG data comprises a plurality of I pictures, and

the data extractor extract plural I pictures at intervals corresponding to the [measurement result of the load measuring unit] load condition processed by the load processing device.

10. (Amended) The video data distribution device according to claim 1, [which comprises] further comprising:

an encoder for encoding image signals from a video camera in real time and generating video data having plural frame data; and

a buffer for temporarily storing the video data generated by the encoder, wherein

by thinning frame data from the [among plural] frame data [in] comprised within the video data stored in said buffer, the data extractor extracts [the number] an amount of frame data [based on the measurement result of the load measuring unit] from said video data based on the load condition processed by the load processing device.

11. (Amended) A video data distribution system which comprises:

a load measuring device for measuring a load condition of a network or the video data distribution system;

a video data distribution device comprising [a load measuring device for measuring a load condition of the video data distribution system,] a data extractor for extracting [the number of] an amount of frame data from video data comprising frame data, the amount of extracted frame data corresponding to a measurement result of said load measuring unit, [from video data

including plural frame data] and a transmitter for transmitting the frame data extracted by the data extractor via a network; and

B3 Cont'd

a video data playback device for receiving the frame data transmitted from the transmitter of said video data distribution device via said network and playing back the received frame data.

Claim 12, line 2, change [11] to --11,--.

Claim 13. (Amended) The video data distribution system according to claim 11, wherein [plural] a plurality of video data playback devices are connected to the network, and

B3

[one] frame data transmitted from the transmitter of the video data distribution device [onto] via said network is received by each of said [plural] plurality of video data playback devices.

Claim 14. (Amended) The video data distribution system according to claim 11, wherein the video playback device transmits a plurality of data transfer requests, in which each data transfer request designates a data amount [is designated] to the video data distribution device [plural times], and

upon receiving said data transfer requests [plural times], the video data

distribution device transmits frame data based on the data amount designated by each data transfer request [for said each data transfer request].

Claim 15. (Amended) The video data distribution system according to claim 12, wherein the video playback device transmits a data transfer request in which video data is designated, and

upon receiving said data transfer request, the video data distribution device transmits [plural] a plurality of packets having a [part] portion of the frame data of said video data at predetermined intervals.

B3 Cont

16. (Amended) A video data distribution method which comprises:

a transmission level determining step of determining a transmission level in accordance with a load of a video data distribution system;

a data extracting step of extracting [the number] an amount of frame data from video data comprising frame data corresponding to the transmission level determined by said transmission level determining step; [from video data including plural frame data;] and

a transmitting step of transmitting the frame data extracted by said data extracting step.

B3 Cont'd

said data extracting step and said transmitting step being performed within a video data distribution device.

Claim 17, line 2, change [16] to --16,--.

Claim 18, line 2, change [16] to --16,--.

Sub D6

Claim 19. (Amended) The video data distribution method according to claim 16, wherein in the transmission level determining step, when the video data playback device plays back the video data with fast speed, the transmission level is determined in such a manner that frame data is extracted from [the] video data [with a part of] having a portion of its frame data thinned, [from plural frame data included in the video data is extracted,] and when fast playback is not performed, the transmission level is determined in such a manner that the frame data of the video data is not thinned.

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Sub D7

Claim 20. (Amended) The video data distribution method according to claim 16, wherein the video data comprises frame data and voice data, and

in the data extracting step, when the video data playback device quickly forwards and plays back the video data, [including plural frame data and voice

data,] said voice data is deleted from the video data and [the number] an amount of frame data corresponding to the transmission level is extracted to generate video data, and

in the transmitting step, the video data generated by said data extracting step is transmitted.

Please add claims 21-25 as follows.

--21. The video data distribution device according to claim 1, wherein said load processing device processes a load condition of a network by measuring a degree of congestion of the network.

22. The video data distribution device according to claim 1, wherein said load processing device processes a load condition of a network by receiving a measured degree of congestion of the network, which is transmitted from a ~~video playback device.~~

22. The video data distribution device according to claim 1, wherein said data extractor extracts a reduced number of frames of the frame data comprised within the video data.

23. The video data distribution device according to claim 5, wherein the MPEG data includes two kinds of inter-frame data, said two kinds of inter-frame data being P picture and B picture,

and said inter-frame data is selectively extracted from the MPEG data by the data extractor based upon a priority assigned to each kind of inter-fame data.

24. The video data distribution system according to claim 12, wherein the load measuring unit is contained within the video distribution device.

25. The video data distribution system according to claim 12, wherein the load measuring unit is contained with the video playback device, and

the video playback device transmits the measurement result of the load measuring unit to the video data distribution device.--

REMARKS

Claims 1-25 are pending. Claims 1, 11, and 16 are independent claims.

Claims 1-20 have been amended, while claims 21-25 have been added by applicant.

ALLOWABLE SUBJECT MATTER

Applicant would like to take this opportunity to thank the Examiner for her indication that claims 19 and 20 contain allowable subject matter.

SYNOPSIS OF THE INVENTION

The present invention is directed to a system in which a video server 5 transmits video data over a network 4 to a client 9. Network and CPU load measuring units, 18 and 19 respectively, are located in the client or the video server, as shown in Figures 2 and 21. The network load measuring unit constantly monitors the load of the network. When the load of the network is high, the video server decreases the amount of video data to be transmitted by thinning the frame data in the video data. The process of thinning the frame data is described in more detail in section 1.3 of Specification, pages 17-18. Also, the video server device may decrease the amount of video data to be transmitted according to the load of a CPU, as measured by a CPU load measuring device. Figures 7 and 8 describe the operation of the CPU load measuring unit and the network load measuring units, respectively.

REPLY TO REJECTIONS

Katseff et al./Shimoda Rejection

Claims 1, 2, 4-9, and 11-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Katseff et al. (U.S. Patent No. 5,822,537, hereinafter Katseff) in view of Shimoda (U.S. Patent No. 5,440,345, hereinafter Shimoda). This rejection, as it pertains to the presently pending claims, is respectfully traversed for the following reasons.

The details of the rejection of independent claims 1 and 11 are set forth in section 4 of the Office Action mailed September 27, 2000. In the description of Katseff, the Examiner states that a video data distribution device is shown in Figure 1, which comprises a load measuring unit for measuring a load condition of a network or the video data distribution device. The Examiner relies upon the monitoring subroutine disclosed in Figure 10 and column 15, lines 15-24, of Katseff as teaching a load measuring unit. The Examiner acknowledges that Katseff fails to disclose a data extractor for extracting a number of frame data corresponding to a measurement result of the load measuring unit and a transmitter for transmitting the extracted frame data.

The Examiner states that Shimoda discloses a high efficient encoding/decoding system which includes data extractor for extracting data length information 217, as taught in Figure 25b and column 27, lines 19-28.

The Examiner further states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Katseff's system with Shimoda's data extractor in order to extract the number of frame data corresponding to a measurement response of said measuring unit from video data including plural frame data. Applicant respectfully submits that there is no motivation to combine the Katseff and Shimoda references. Furthermore, Applicant respectfully submits that the alleged combination of Katseff and Shimoda fails to teach every limitation as recited in claims 1 and 11.

No Motivation to Combine Katseff and Shimoda

In page 4 of the Office Action, the Examiner asserts that one would have been motivated to modify Katseff with Shimoda's data extractor in order to "offer necessary means for extracting the number of frame data receiving from the previous step for video data processing purposes". Applicant respectfully disagrees with the alleged motivation for combining the references.

Shimoda is directed to a high efficient encoding/decoding system, especially a video cassette recorder (see column 26, line 32 of Shimoda) for carrying out trick play operations. Applicant respectfully submits that Shimoda discloses a data extractor 217, in Figure 25(b), which maintains a constant

transmission rate. In particular, column 24, lines 31-34 of Shimoda describes the data structure of the VCR, as shown in Figure 23,

> "The MB STUFF 59 for data length adjustment is allocated. The MB STUFF 59 is data length adjustment bit data for maintaining a transmission rate constant" (emphasis added),

while column 28, line 61 - column 29, line 3 and column 29, lines 49-54 of Shimoda describes the operation of the device, as shown in Figure 14,

> "For intra-frame data and inter-frame data which have not been playbacked, the intra-frame data extractor 217 outputs a signal indicating that these data are invalid, and thus the SKIP data adjuster 218 supplies the SKIP code to the code reconstructor 219. Thus, the code reconstructor 219 skips all data other than input intra-frame data. Further, if data are insufficient after they have been reconstructed, the code reconstructor 219 supplies them by inserting an adjusting bit according to data supplied from the SKIP data adjuster 218...
>
> "By selecting the fourth passage, data volume to be transmitted decreases and as a result, a surplus time is produced after transmitting the 360 the macro block data. So, the third passage is selected for time adjustment. FIG. 14 is a diagram for explaining the third passage by the oblique lines." (emphasis added).

As described above, Shimoda's data extractor maintains a constant transmission rate with cooperation from the code reconstructor 219 and the SKIP data adjuster. In contrast, the intended purpose of Katseff's video distribution system is to "dynamically vary the rate at which video frames are retrieved from the respective file server over the network" (see column 2, lines 50-51 of Katseff).

Therefore, the proposed modification of Katseff with the data extractor of Shimoda would render the Katseff system unsatisfactory for its intended

purpose. As such, Applicant respectfully submits that there is no motivation to make the proposed modification to Katseff.

Katseff/Shimoda Combination Fails to Teach or Suggest All Claim Limitations

Even if one of ordinary skill in the art were motivated to combine the teachings of Katseff and Shimoda, the alleged combination of references fails to teach or suggest the invention as recited in claim 1. To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. Applicant respectfully submits that, contrary to the Examiner's description, Katseff fails to disclose any type of measurement or processing of a load condition of a network or the video data distribution device. The disclosure of Figure 10 and column 15, lines 15-24, of Katseff is directed to a subroutine for monitoring the data buffer 115 within the workstation 15 (see Figure 1). This workstation is used for requesting and playing back the requested video data. Therefore, Katseff merely discloses the measurement of a load on the playback device, not a load on a network or video data distribution device 10. Applicant further submits that none of Katseff and Shimoda teach or suggest a data extractor for extracting the number of frame data corresponding to a load condition of a network or the video distribution. Katseff is directed toward altering the rate at which video

frames are requested and retrieved by a playback device from a distribution device according to the measured buffer load, as disclosed in column 15, lines 10-36. Therefore, Katseff attempts to solve the problem of network congestion by having the playback device compensate for the congestion by reducing the rate at which frames are retrieved from the file server. This is different than the present invention, which compensates for a network or device load condition by having the video distribution device determine a reduced number of frames to be extracted and transmitted in accordance with the load condition.

Shimoda in no way remedies the deficiency of Katseff. The portions of Shimoda that the Examiner refers to merely disclose a data extractor which extracts a certain number of frames based on a mode of playback. Shimoda fails to provide any teaching for altering a video data distribution device's operation (for example, changing the number of frames extracted from video data) based on the load of a network or the load of a video data distribution device. Shimoda is not at all concerned with the problems caused by network congestion or heavy device processor loads. Applicant therefore respectfully submits that the combination of Katseff and Shimoda fails to teach or suggest every element of the invention recited in claims 1 and 11.

It is submitted that claims 2, 4-9, and 12-15 depend from claims 1 and 11 and are allowable at least for the reasons above.

Applicant further submits that independent claim 16, as amended, discloses an extraction step for extracting an amount of frame data according to a transmission level determined in accordance with network or video data distribution device load. As stated above, Katseff and Shimoda do not teach or suggest a video distribution device that extracts an amount of frame data corresponding to a load on the video distribution system and transmits the extracted data. Claims 17 and 18 depend from claim 16 and are allowable for at least the same reasons. Therefore, reconsideration and withdrawal of this rejection is requested.

Katseff/Shimoda/Takahashi Rejection

Claims 3 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Katseff in view of Shimoda and Takahashi (U.S. Patent No. 5,739,865, hereinafter Takahashi). This rejection is respectfully traversed.

In the rejection, as described in section 5 of the Office Action, the Examiner acknowledges that Katseff and Shimoda fail to disclose a thinning process for frame data "wherein the data extractor extracts the number of frame data by thinning frame data, based on the measurement result of the load measuring unit, among the plural frame data" as claimed. The Examiner relies on Takahashi to remedy this deficiency. Applicant respectfully submits

that the combination of Katseff, Shimoda, and Takahashi fails to disclose the invention as recited in claims 3 and 10.

Katseff/Shimoda/Takahashi Combination Fails to Teach or Suggest All Claim Limitations

Takahashi is directed to a system that receives an input signal at a first frame frequency and reproduces the image signal at a second frame frequency in order to transmit the image signal to a NTSC or PAL television system (see abstract and column 1, lines 7-25). Therefore, the system of Takahashi is able to take an image signal which has been sampled at 300 pictures per second and "thin" the frames of the signal in order to allow the signal to be shown on NTSC or PAL television systems which require a much lower picture rate. Specifically, the number of pictures per second must be reduced down to 1/5 for conformity with a NTSC system, and 1/6 for conformity with a PAL system. See the description of column 9, lines 22-44. Takahashi in no way teaches that this thinning process is performed based on a measurement result of a load measuring unit. As stated above, Katseff and Shimoda also fail to teach extracting a certain number of frame data based on a load condition of a network or the video distribution device. Therefore, Takahashi fails to remedy the deficiencies of Katseff and Shimoda in regard to teaching or suggesting the

present invention recited in independent claim 1 or the additional elements recited in dependent claims 3 and 10. Applicant respectfully requests reconsideration and withdrawal of this rejection.

NEWLY ADDED CLAIMS

Applicant respectfully submits that newly added claims 21-25 are allowable by virtue of their dependency on independent claims 1 and 11, at least for the reasons set forth above with respect to claims 1 and 11. Also, Applicant respectfully submits that the claims 21 and 22 are further allowable because Katseff and Shimoda provide no teaching whatsoever of load condition measurement or processing within a video data distribution device.

CONCLUSION

If the Examiner has any questions concerning this application, the Examiner is requested to contact John A. Castellano, Registration No. 35,094 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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